

PATENT ABSTRACTS OF JAPAN

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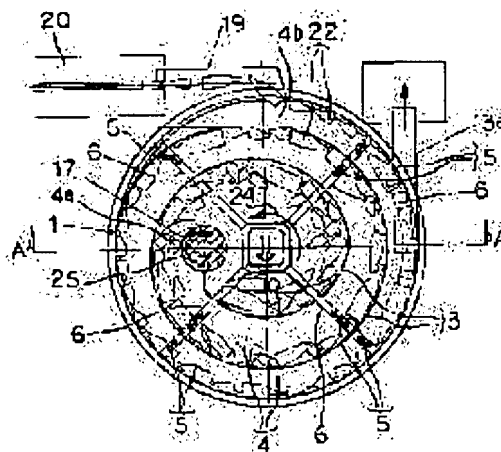
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(54) GLASS BOTTLE LINING UP DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a glass bottle lining up device which loads glass bottles on a turn table having a truncated conical face and turns it, and lines up them as they are transported.

SOLUTION: This lining up device has a cylindrical member 1 having an opened upper face; a turn table which is installed inside the cylindrical member 1, and has a truncated conical face, and loads glass bottles 22 thrown into a central part and transports them from the center toward the outside as they are turned; and a glass bottle guide plate 3 which is arranged so that its lower end may approach the upper face of the turn table and has a spiral path 4 formed above the turn table. The lining up device lines up the thrown-in glass bottle 22 as they are transported along the glass bottle guide plate 3 toward the outer periphery of the turn table, and discharges them in the direction of the tangent of the outer periphery.



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CLAIMS

[Claim(s)]

[Claim 1] The turntable transported toward the method of outside from a core while carrying the glass bottle which is installed in the cylindrical member which opened the top face wide, and this cylindrical member, and has a truncated cone side, and was thrown into the core and circling, Are arranged so that a lower limit may approach the top face of this turntable, and it has the glass bottle guide plate which forms a spiral path in the turntable upper part. Glass bottle array apparatus characterized by making it align, transporting the thrown-in glass bottle. towards the direction of a periphery of a turntable along with said glass bottle guide plate, and making it discharge to a periphery tangential direction.

[Claim 2] Glass bottle array apparatus according to claim 1 which was arranged in the inlet port

of said screw-shaped channel, and arranged the rotation brush which adjusts the overage of the bottle to a screw-shaped channel while said turntable upper part is approached and a lower limit is rotated to the hand of cut and opposite direction of a turntable.

[Claim 3] Glass bottle array apparatus according to claim 1 or 2 which arranged the gap prepared between said cylindrical member and the turntable periphery edge, the caret receptacle slot of the shape of a ring arranged down this gap, and the caret discharge brush which discharges a caret from a caret exhaust port while it is arranged in the inferior surface of tongue of a turntable periphery edge and a lower limit rotates in contact with the top face of said caret receptacle slot.

[Claim 4] Claim 1 which turned the duplication prevention member to said screw-shaped channel caudad, and hung it from it thru/or glass bottle array apparatus according to claim 3.

[Claim 5] Said duplication prevention member is glass bottle array apparatus according to claim 4 which are turnable members, such as a spring.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] In case this invention identifies and sorts out the glass bottle collected as recycled resources, it relates to the glass bottle array apparatus for making it align.

[0002]

[Description of the Prior Art] It is easy to carry out discernment and sorting of a glass bottle, and in order to carry out certainly, it is necessary to align at a time one and to send a bottle so that it may not lap. A glass bottle is identified, or a moving vane, a fin, etc. are arranged in the conveyor upper part arranged in the shape of a straight line sorting out, the glass bottle which

was put on the conveyor and has been conveyed is applied to a moving vane, a fin, etc., and he changes the feed rate of a glass bottle, and is trying to align conventionally.

[0003]

[Problem(s) to be Solved by the Invention] Thus, since the conveyor is arranged in the shape of a straight line, a large location is needed in the die-length direction of a conveyor. moreover, the time of supplying a glass bottle to a conveyor -- a bucket and a fin -- since the with conveyor was used, and dispersion arose in supply with the magnitude of a glass bottle, the amount of supply had to be lessened slightly. Furthermore, the screen etc. was needed for removing carets, such as a crack bottle.

[0004] This invention aims at offering the glass bottle array apparatus which was not originated in order to solve the above troubles, does not need a compact and large location, and the size of a glass bottle arises variously, and dispersion does not arise ***** in the amount of supply, either, and does not need a screen etc. for caret removal.

[0005]

[Means for Solving the Problem] The cylindrical member which opened the top face wide according to this invention in order to attain the above-mentioned purpose, The turntable transported toward the method of outside from a core while carrying the glass bottle which is installed in this cylindrical member, and has a truncated cone side, and was thrown into the core and making it circle, Are arranged so that a lower limit may approach the top face of this turntable, and it has the glass bottle guide plate which forms a spiral path in the turntable upper part. The glass bottle array apparatus which is aligned transporting the thrown-in glass bottle towards the direction of a periphery of a turntable along with said glass bottle guide plate, and was discharged to the periphery tangential direction is offered.

[0006] According to the operation gestalt of this application, it is desirable to arrange the rotation brush which adjusts the overage of the bottle to a screw-shaped channel, approaching said turntable upper part and rotating [are arranged in the inlet port of said screw-shaped channel,] a lower limit to the hand of cut and opposite direction of a turntable.

[0007] Moreover, according to the operation gestalt of this application, while it is arranged in the gap prepared between said cylindrical member and the turntable periphery edge, the caret receptacle slot of the shape of a ring arranged down this gap, and the inferior surface of tongue of a turntable periphery edge and a lower limit rotates in contact with the top face of said caret receptacle slot, it is desirable to arrange the caret discharge brush which discharges a caret from a caret exhaust port.

[0008] Furthermore, according to the operation gestalt of this application, it is desirable to turn a duplication prevention member to said screw-shaped channel caudad, and to hang it from it.

[0009] According to the operation gestalt of this application, turnable members of said duplication prevention member, such as a spring, are desirable further again.

[0010] Next, an operation of this invention is explained. Since it is made to align, supplying the core of a turntable, making it circle and transporting a glass bottle along with a spiral glass bottle guide plate and was made to discharge, equipment can be used as a compact. Moreover, since a bottle is aligned by the duplication prevention member while the rotation brush which arranged the overage of a bottle in the inlet port of a screw-shaped channel adjusts, overage adjustment and alignment of a bottle can be performed easily. Furthermore, since it discharges with the caret discharge brush which the caret receptacle slot of the shape of a ring arranged down the turntable periphery edge from the gap between a cylindrical member and a turntable periphery edge was dropped, and attached the caret and the small bottle besides an object in the turntable inferior surface of tongue, plugging of the bottle in the side made mix in a bottle a caret and sorted out can be prevented.

[0011]

[Embodiment of the Invention] Hereafter, the desirable operation gestalt of this invention is explained based on a drawing. Drawing 1 and drawing 2 show 1 operation gestalt of this invention, and the top view of glass bottle array apparatus according [drawing 1] to this invention and drawing 2 are the A-A view Figs. of drawing 1 . In drawing, 1 is the cylindrical member which opened the top face wide. 2 is a turntable transported toward the method of outside from a core, carrying the glass bottle 22 which is installed in this cylindrical member 1, and has truncated cone side 2a, and was thrown into the core, and circling. 3 is a glass bottle guide plate, it is arranged so that the top face of a turntable 2 may be approached in a lower limit, and it forms the spiral path 4 which transports a bottle 22 to the turntable 2 upper part. 4a is the inlet port of a screw-shaped channel 4, and 4b is the outlet of a screw-shaped channel 4. the reinforcement which 5 is the turnable duplication prevention member which consisted of steel coiled spring, chains, etc., and arranged upper limit above the cylindrical member 1 -- it attached in the crosspiece 6, and the lower limit is hung above a screw-shaped channel 4 so that the top face of a turntable 2 may be approached.

[0012] 7 is a revolving shaft which supports the core of said turntable 2 and is made to rotate a turntable 2. This revolving shaft 7 is supported pivotable by the bearing which was prepared in the base 10 and which is not illustrated. 9 is arm material which supports a turntable 2. 11 is a turntable driving gear, makes collar gear 11b arranged on the revolving shaft 7 engage with driver 11a, and rotates a turntable 2.

[0013] 12 has the shape of a ring arranged down the gap 21 prepared between the cylindrical member 1 and the turntable 2 periphery edge, and is the caret receptacle slot where the upper part was opened wide. 13 is the caret exhaust port which carried out opening to the base of the caret receptacle slot 12, and 13a is the caret discharge charge arranged in the caret exhaust port 13. 14 is a caret discharge brush which discharges a caret 23 from the caret exhaust port 13, while it is arranged in the inferior surface of tongue of a turntable 2 periphery

edge and a lower limit rotates with a turntable 2 in contact with the top face of said caret receptacle slot 12.

[0014] the reinforcement arranged above the cylindrical member 1 as 15 was shown in drawing 2 -- it is the bottle injection chute attached focusing on the abbreviation for a crosspiece 6. the fin which 16 conveys a bottle 22 and is supplied on a turntable 2 -- it is a with conveyor, and it is arranged above the cylindrical member 1 so that the downstream may be located above the bottle injection chute 15. in addition, 16a -- a fin -- it is the fin of the with conveyor 16.

[0015] 17 is the rotation brush arranged in inlet-port 4a of said screw-shaped channel 4, approaches the turntable 2 upper part and rotates a lower limit to the hand of cut and opposite direction of a turntable 2. 18 is a driving gear which drives the rotation brush 17 (drawing 2). As 19 is shown in drawing 1 , it is the bottle taking-out chute arranged in outlet 4b of a screw-shaped channel 4, and 20 is a bottle taking-out conveyor.

[0016] In addition, 24 is an arrow head which shows the hand of cut of a turntable 2, and 25 is an arrow head which shows the hand of cut of the rotation brush 17 (drawing 1).

[0017] Next, the operation based on an operation gestalt is explained. The bottle 22 which carries out discernment and sorting is conveyed by conveyor 16, and it supplies on the core of a turntable 2. While making it circle in a turntable 2 and transporting the inside of the spiral path 4 for a bottle 22, it is made to align, preventing duplication of a bottle 22 by the duplication prevention member 5, and discharges by taking-out conveyor 20. The bottle 22 thrown in on the turntable 2 performs the overage adjustment and alignment to the screw-shaped channel 4 of a bottle 22 with the rotation brush 17 arranged in inlet-port 4a of a screw-shaped channel 4. Moreover, a caret 23 drops the caret receptacle slot 12 of the shape of a ring arranged down the turntable 2 periphery edge from the gap 21 between the cylindrical member 1 and a turntable 2 periphery edge, with a turntable 2, rotates the caret discharge brush 14 and is discharged from a caret exhaust port.

[0018] As for this invention, it is needless to say that it can change variously in the range which is not limited to the gestalt of the above-mentioned implementation and does not deviate from the summary of this invention.

[0019]

[Effect of the Invention] Since according to this invention it is made to align, making it circle on the turntable which has a truncated cone side, and transporting a bottle along with the glass bottle guide plate of a screw-shaped channel and discharges in case discernment and sorting of a glass bottle are carried out as stated above, the large location for installing a long conveyor is not needed. Moreover, since the rotation brush which rotates to the hand of cut and opposite direction of a turntable on a turntable adjusts the overage of a bottle, dispersion in supply by the size of a bottle does not arise. Furthermore, since carets, such as a crack

bottle, are discharged with a caret discharge brush, making it circle in a turntable, a screen etc. is not needed. Which outstanding effectiveness is done so.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the top view of the glass bottle array apparatus by this invention.

[Drawing 2] It is the A-A view Fig. of drawing 1 .

[Description of Notations]

- 1 Cylindrical Member
- 2 Turntable
- 2a Truncated cone side
- 3 Glass Bottle Guide Plate
- 4 Screw-shaped Channel
- 4a Screw-shaped channel inlet port
- 4b Screw-shaped channel outlet
- 5 Duplication Prevention Member
- 6 Reinforcement -- Crosspiece
- 7 Revolving Shaft
- 9 Arm Material
- 10 Base
- 11 Turntable Driving Gear
- 11a Driver
- 11b Collar gear
- 12 Caret Receptacle Slot

13 Caret Exhaust Port
13a Caret discharge charge
14 Caret Discharge Brush
15 Bottle Injection Chute
16 Bottle Induction Conveyor
16a Fin
17 Rotation Brush
18 Rotation Brush Driving Gear
19 Bottle Discharge Charge
20 Bottle Discharge Conveyor
21 Gap
22 Glass Bottle
23 Caret

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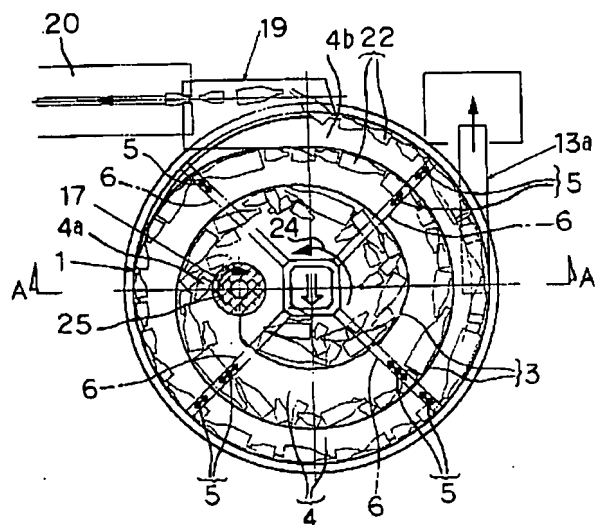
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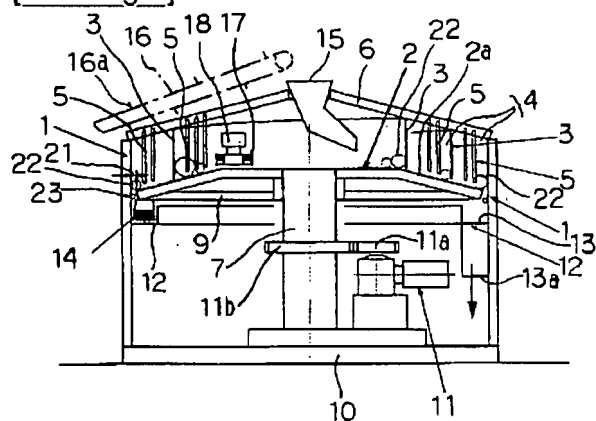
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DRAWINGS

[Drawing 1]



[Drawing 2]



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